

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
13 April 2006 (13.04.2006)

PCT

(10) International Publication Number  
**WO 2006/039278 A2**

(51) International Patent Classification:  
**A61C 5/00 (2006.01)**

St. Petersburg, 198217 (RU). ALTSHULER, Gregory  
[US/US]; 17 Cerulean Way, Lincoln, MA 01773 (US).

(21) International Application Number:  
**PCT/US2005/034606**

(74) Agent: ELISEEVA, Maria, M.; Houston Eliseeva LLP,  
4 Militia Drive, Suite 4, Lexington, Massachusetts 02421  
(US).

(22) International Filing Date:  
29 September 2005 (29.09.2005)

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY,  
MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO,  
NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK,  
SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
VC, VN, YU, ZA, ZM, ZW

(25) Filing Language: English  
(26) Publication Language: English  
(30) Priority Data:  
60/614,183 29 September 2004 (29.09.2004) US  
60/681,630 17 May 2005 (17.05.2005) US

(74) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,

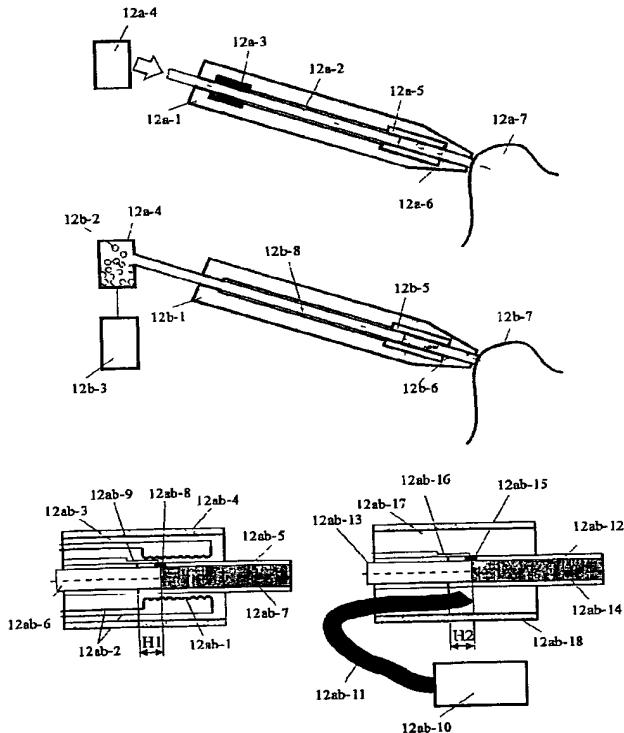
(71) Applicant (for all designated States except US): RE-  
JUVEDENT, LLC [US/US]; Suite 16, 150 Quincy Shore  
Drive, Quincy, MA 02171 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): BELIKOV, Andrei,  
V. [RU/RU]; 141/86 Narodnogo Opolcheniya Avenue,

[Continued on next page]

(54) Title: A METHOD AND APPARATUS FOR TOOTH REJUVENATION AND HARD TISSUE MODIFICATION



(57) Abstract: The present invention is a number of methods and devices for tooth rejuvenation and hard tissue modification comprising applying a layer of a peroxide-free composition to a tooth surface. The applied composition comprises an aqueous solution of one or more edible acids. The composition has a pH selected from the range of about 0.5 to 5. After the treatment the composition is removed from the tooth surface. In various embodiments of the invention the pH of the composition can range between about 0.5 and 3, a narrower range being between 1 and 1.75. Hard tissue rejuvenation comprises forming a post-treatment layer having a composition which is different from that of the hard tissue of the hard tissue by selectively heating a porous layer on the hard tissue.

WO 2006/039278 A2



RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,  
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- *without international search report and to be republished upon receipt of that report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*